STREAM NAME Long Fork	LOCATION @ Buellhorn cs. Rd
STATIONS RIVERMILE	STREAM CLASS
LATLONG	RIVER BASM
STORET#	AGENCY
INVESTIGATORS (1) JM, JA SW	
FORM COMPLETED BY	TIME CM PM REASON FOR SURVEY

	H abitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Роог
	I. Epifaunal Substrute/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are nor new fall and transient).	40-70% mix of stable habitat; well-suited for full eeleningtien potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rare at high end of scale).	20-40% mix of stable habitat; habitat availability less than derirabie; substrate frequently disturbed or removed.	Less than 20% stable habitat: lack of habitat is obvious; substrate unstable or lacking.
=	SCORE 18	2019 (18) 17 16	IS 14. 13 [2.] [10 9 8 7 6	5- 4. 3 2. I 0'-
Parameters to de evaluateu in sumpling teach	2. Embeddedness	Gravel. cobble, and boulder panicles are 0-25% surrounded by tine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	GFavel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
1 73	SCORE \}	20 19 (18) 17' 16	I5 14 13 12. 11.	10 9 8 7: 60	5 4. 3 2: I ON
ers to be evalua	3. Velocity/Depth Regime	All iaur velocity/depth regimes present (slow-deep. slow-shallow, fast. deep. fast-snallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the ‡ regimes present (if fast-shallow i r iissing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by l velocity/ depth regime (usually slow-deep).
antel	SCORE	20 : 19 - 18 (17) 16.	15. 14 13 12. 11.	10 9 8 7 6	[5], 4 3, 2 I 0;
Para	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravei, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently: pools aimost absent due to substantial sediment deposition.
	SCORE \S	20: 719. 718. 17. 16.	(15) 14: 13: 12: 11	10 9 8 7 6	5 4 3 2 L 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel: or <25% of channel substrate is exposed.	Water Ells 25-75% of the available channel and/or niffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE 14	20 19 (18) 17 16	_15; I4 13 I2 IT	10 9 8 7 6	5 4 3 2 1 0

1 1	п. 1.	Condition Category						
	Habitat Parameter	Optimai	Suboptimal		Poor			
	.Channel	hannelization or redging absent or ninimal; stream with ormal pattern.	Some channelization present, usually in areas of bridge abutments: cvidence oipast channelization. i.e., dredging, (greater than past 20 yr) may be present, bur recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on borh banks; and 40 to 80% or stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitar greatly altered or removed entirely.			
	CORE ()	10 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 I O			
որՈսց reach	Frequency of tiffles (or bends)	Decurrence of riffles elatively frequent: ratio of distance between iffles divided by width rithe stream <7:1 generally 5 to 7); /ariety of habitat is key. In streams where riffles the continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 1to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width oi the stream is between 1S to 25.	Generally all that water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25			
17.5	CORE	20 (19) 13 17 16	15 14 13 12 11	10 9 3 7 6	5 4 3 2 1 0			
Parameters to be evaluated broader than sampling reach	3. Bank Stability score each bank) Note: determine left or right side by lacing downstream.	Banks stable; evidence of erosion of bank Failure absent or minimal; little potential for future problems.	Moderately sable: infrequent, small areas of erosion mossly haled over. 5-30% oibank in reach has areas oi erosion.	Moderately unsuble; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable: many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.			
C.V.B	SCORE (LB)	Left Bank 10- 9	(8) 7 6	5 4 3	2 I 0			
3	SCORE (£ (RB)	Right Bank, 10 9	8 7 6	5 2 3	2 1 0			
Parameters	9. Vegetative Protection (score each bank)	More rhan 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evidenr: almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent: more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; parches oibarc soil or closely cropped vegetation common: less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.			
	SCORE (LE)	Left Bank 10 (9)	8 7 6	5 4 3	2. I 0			
	SCORE (RB)	Right Bank LO (9)	8 7 6.	5 4 3	2 1 0			
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone addsvinisters; chupaarking lots, roadbeds, clear-cuB. lawns. or crops) have not impacted zone.	Width of riparian zone not when the work with the work with the control of the work with the work wi	Width of riparian zone 68 til metehavbumpacted ries have impacted zone a great deat.	Width of riparian zone siparian regetation due to human activities.			
	SCORE 🐧 (LB)	Left Bank 10 9	(B) 7 6	5 44. 3	2 1 0			
	SCORE (RB)	Right Bank, 10 9	(8) 7 6	5 4 3	2 1 0			

STREAM NAME INNO FORY	LOCATION a Buckhern or ld
STATION# RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN
STORET #	AGMCY
INVESTIGATORS LD.JM, JA, SW	
FORM COMPLETED BY	DATE SURVEY REASON FOR SURVEY

_	
TE LOCATION/MAP	Draw a map of the site and indicate the areas sampled
	Ahafa #3 ccD
	photo # 4 down
	Nhoto #4 Clown
	L plate
HABITAT TYPES	Indicate the percentage of each habitat type present
	· N
	© Cobbie 70 % Stags 10 % Q Daterout Banks 10 % Q Sand 5 %
	O Submissed Management % D Other (C DOM) 5 5 4
	3 Submitted Transfer Metalophytes 74 3 Owe (C 7 O 7)
STREAM	Superfreem Classification Stream Type
CHARACTERIZATION	☐ Pertennial ☐ Intermittent ☐ Tidai ☐ Coldwater ② Wafmwater

				· · · · · · · · · · · · · · · · · · ·			
	S	To Fores	Pasture Diffidustri uiturai Dictre	ac iai	Local Water Erosion I None A-Moderat Estimated Stream W	E D Heavy	
		Locai V	vatershed NPS Polludo ridence - 2-Some potenti ons sources		Estimated Stream Do Riffle 12 m 2 root 12 7 m Velocity 1, 3 m	-	
	į	Canons	Cover open 🖸 Partiy-shadeo	d ⊟Sheet			
	- }		/atter Mark			(
	İ	ingu ii		141	Chaquelized Ci Y		
					Dam Present Cl Y	es DATO	
	ION	Indicat	e the dominant type and	d record the d Shrubs	ominant species present © Grasses © Hent	paceous ·	
		domita	lat species present]√	on <u>wood</u>	1, sycamore, Ho		
	ON	Indicat I Root I Ficat	td emergent 🗀 🖯	d record the d Rooted submerg Attached Algae	ominant species present ent D Rooted doamng C	l Free Floatung	
		domin:	aat species preseat				
		Portion	of the reach with vego	tative cover_	<u>D.</u> %	_	
SEDIMENT/ SUE	BSTRATE	Odger D Nors C Ches C Othe	mal □ Sewage meal □ Apacrobic	☐ Perroicum ☐ None		st 그 Paper fiber 그 Sand	
··		Oils	ant ⊐ Slight ⊐ Mode	rate 🔾 Prot	embedded, are the t	thich are not deeply tadersides black in color?	
WATER QUALIT	TY	Теппре	-rature° C	_	Water Odors D-Normal/None: □ S	Alexander 1	
		Specia	ie Conductatee				
		Dissor	ved Oxygen	į	Water Surface Oils		
		₽ #		'	☐ Slick ☐ Sheen ☐ None ☐ Other	□ Globs □ Flecks	
		Turbi	dity		Turbidity (if not m		
		WQ II	nstrument Used		Opaque O Water	v turbid Turbid	
	NIC SUBS (should ad		COMPONENTS 10%)		ORGANIC SUBSTRATE C (does not necessarily add		
Substrate Type	Diameter		% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock				Dennus sticks, w			
\$earocx							
 	imata (10°)				meaterials (CPOM)	100	
Bouldez > 256	5 mm (10°) 56 mm (2.5°	-10")	20	Muck-Mud	materials (CPOM) black, very fine organic (FPOM)	 	
Boulder > 256 Cobble 64-25			20 75	Muck-Mud	 	 	
Boulder > 256 Cobble 64-25 Gravel 2-64	6 mm (2.5	5")	20 75 5	Muck-Mud Mari	 	 	
Boulder > 256 Cobble 64-25 Gravel 2-64 Sand 0.06-	6 mm (2_5° mm (0,1*-2	5")	20 75 5		black, very fine organic (FPOM)	 	

PHISICAL CLARACTORY

LOCATION above Clear Frish ~ 7001
STREAM CLASS
RIVER BASIN
AGENCY EPA/KYDUW
DATE 5 14 102 REASON FOR SURVEY
AS45 AMPM MTM VIE

-	
SITE LOCATION/MAP	aw a map of the site and indicate the areas sampled
	py 25,26,27
· ·	
HABITAT TYPES	Indicate the percentage of each habitat type present
	taranga da Sand% □ Sand% □ Sand%
	☐ Submerged Macrophytes% ☐ Other(%
STREAM CHARACTERIZATIO	Subsystem Classification Stream Type Perennial Contempted Tidal Coldwater DWarmwater

* Water too deep & current too swift to conduct RBP.

	D DATA SHEET (BACK)	TILK EIEF	TON/WATER QUA	LYZIX3	CENTRY CL	5HARIC*
					> 0.004 mm (stic	СІЗА
'			0/		90.0 مىد .	7112
	शानायुद्धा विशेष (राष्ट्र	naM	01	(Vaning) man S-60.0	Sand
			0/	(_5	.2-64 mm (0.1"-2,	i-vei
	black, very fine organic (FPOM)	Mu ck -Mud	0/2	(±01-	*2.56 nun 825.4-8	-Cappic
	(MOSO) <u>alciman</u>		98		(*01) mm 922 <	Boulder
	street, wood, course plant	Denima				25 Sedrock
şailqms2 ni politeoqtaoD % es14.	Characteristic	Substrate agyT	ni nobiseogma⊃ % dasaA yailqma2		Totamaid	Substrace Type
	GOCANIC SUBSTRATE CO				PECAVIC SUBST	נאס
bi d an 2 Turbid	Tarbidiry (if not me Clear — Siightly — Opsque — Water o	97/10/2	Pac Juanings	nichau'T at Owy		
230017 □ edo(D□	effO spetrug rateW mote D spite D mino D shokes	1	54.6	_ Hq _		1
D Chemical D Other	Petroleum □ Fishy	\ -	S 1 1 P casyx0 bay	Disson		
элем.	Water Odors — Schröding — Sc	ع	SEC. P. L Taruer		XXXXVI	WATER
ich are not desply destricted black is color?	Looking at stoness wi embedded, are the n ase DYC DNC	aor9	moom ⊆ nagite ⊆ m	eliO		
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	Porteo					
ತ್ರಭಾಶಂ[ನ ಈಗಿನ	terang estangs insulang - Santsolt bostod (C. 182)	graced its and the degraphic property of the	x 🗀 profesion 🗗	LEOFT C	MOITAT3339V	_
					7,012.12.00.0	
) CEOIT?	insering estimage Sustained drack C estano C	i record the de furbs	Liber dominant type and	i i i i i i i i i i i i i i i i i i i	VEGETATION	RIPARIAN (18 meter b
ONC 8	Dam Present C Ya			•		
	oy □ h asilan nanΩ	ع ر	**************************************	W Agir	_	
		bed2 🗅	Cover C Partly-shaded	Canopa Canopa		
Jung C	Description of the control of the co		Valerabed NPS Pollution idence — Some potenti: sus sources	12,0M D		
42	W mesone bestembed Street of the common of mesone Street of the common o	4) 16/1-	Z) 1800=	5024 C 5234 C		
J H€ AA	Rujeor J Varce Crosson Sicrobonk D Signal C	رداعا عا ب	incubri 🗀 🗀 industri	Pietes Dieid	ZONE/ FEATURES	RAZRIZKI Kazrizki

STREAM NAME Bullalo Creek	LOCATION 07/ Hur 4 1096 gum	teasty Awy 15 bailie
STATION# <u>3</u> RIVERMILE	STREAM CLASS	
LAT LONG	RIVER BASM	
STORET#	AGENCY	
phands		
FORM COMPLETED BY	DATE 5/3/60 REASO	N FOR SURVEY
J. Mandsley	THRE 7300 AM FM	

	VI.L.		Category			
	Habitat Parameter	Optimal	Suboptimal	Marginal	Роог	
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs. undercut banks. cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations: presence of additional substrate in the form of newfall, bur not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat: habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious: substrate unstable or lacking.	
	SCORE	20 (19)8 17 16	I5 [4- 13 12: 11	10 9 8 7 6	5 4 3 2 1 03	
ец изалуш	2. Embeddedness	Gravel, cobble, and boulder pamcles are 0-25% surrounded by fine	Gravel, cobble, and boulder particles are 25-50% surrounded by fine	Grovel, cotble, and boulder particles are So-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.	
1	SCORE	20 (19)18 17 16	15 14 13 12 11.	10 9 8. 7	5 4 3 2 1 1 0 1	
risco : evanua	3. Velocity/Depth Revime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).	
rarametes	SCORE	.20(±19+.18117) 16	/ [5] 14 , 13 12 11	(10) 9 8 7 6	5. 4 3 2 1 08	
FRE	4. Sediment Reposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or line sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, and bends; moderate deposition of pools prevalent.	50% of the bottom changing frequently; pools almost absent due to substantial sediment	
	SCORE	20: 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	. 5 4 3 Z 1 0	
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water tills 25-75% of the available channel, and/or rifile substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
	SCORE	202 19: (18 ²) 17: 16	15 14 13 12 11	10 9 8 7 6	/ 57 44 35 22 11 0 7	

Habitat Condition Category						
Parameter	Optimal	Suboptimal	Marginal	Poor		
6. Channel alteration	Channelization or dredging absent or minimal: stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, bur recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cemenr: over 80% of the sweam reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 I 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance beween riffles divided by width oithe stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders of orbor large, natural obstruction is important.	Occurrence of riffles infrequent; distance beween nffles divided by the width of the stream is between 7 to 15.	lecasional riffle or end: bottom contours roylde some habitat; istance between rifflrs ivided by the width oi	Generally ail flat water or shallow riffles; poor habitat; distance between tiffles divided by the width oithe stream is a		
CORE	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of crosion mostly healed over. 5-30% oibank in reach has areas of crosion.	Moderately unstable; 30-60% afbank in reach has areas of erosion; high crosion potential during lloods.			
SCORE(LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0		
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or notevident; almost all plants allowed to grow naturally.	70-90% of the streambank surjacer covered by native vegetation, but one class of plants is not well-represented; disruption evident bur nor affecting full plant growth potential to any great exrenr: more than one-half of the potential plant stubble height remaining.	patches oibare soil or closely cropped vegetation common; les rhan one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.		
SCORE(LB)	Left Bank 10 9	(8.) 7 6	5 4 3	2. 1 0		
SCORE (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0		
10. Riparian Vegetative Zone Width (score each bank riparian zone)	have not impacted zone.	Width of riparian zone 12-18 meters: human activities have impacted zone only minimally.	zonc a great deal.	<6 meters: little or no difference of the dif		
SCÓRÆ (LB)	Left Bank, 10 9	8 7 6	3	2 1 0.		
SCORE (RB)	Right Bank: 10 9	8 7 6				

EU IOICAN CHAMAS LOCATION all 1096 post pasty (1 wy 15 brid STREAM NAME Bulfalo Cuel STREAM CLASS RIVERMILE STATION# LONG RIVER BASIN LAT AGENCY STORET # mand, ley / Acherman RW INVESTIGATOR\$ Dorn DATE 100 AM PMD REASON FOR SURVEY FORM COMPLETED BY J. Mandsler Draw 2 map of the site and indicate the areas sampled SITE LOUTIONMAP photo 14 (apotream) photo 15 (domotream)

	·	
HABITAT TYPES	Indicate the percentage of each habitat type present Becobble 90% Osings 5% O Undergut Banks 0 % Sand 0 %	
	□ Submarged Macrophyses % □ Other (CR2M) 5 %	
STREAM CHARACTERIZATION	Subaystem Classification Stream Type Streamini Classification Clotherminem Classification Coldwater Classification Classificat	

12.55 9.55 10.55

RIPARIAN INSTREAM	ZONE/ I FEATURES -	A Fores A Field A Agna A Resio A No er A Obvi	Pasture	ai sources	Local Water Erosico None Modern Estimated Stream W Estimated Stream De Riffle 77 m Pool 3 m Velocity 1.5 fel estimated Reach Let Channelized My Dam Present Q Y	Heavy Iden 4 m Poth Rum 2 m Agen 600 m S 2 No
RIPARIAN (18 meter b	VEGETATION uffer)	⊒Tre=	e the dominant type and S	prope	omiaant species present AGrasses O Herb	accous
AQUATIC	VEGETATION	Indica: □ Root □ Floa: domin.	te the dominant type and	d record the d corted submers attached Algae	as / diatoms	l Free Floating
SEDIMEN	T/SUBSTRATE	28 Non	mai Q Sewage micul Q Anaerobic	© Perroleum © None	□ Reflect shells Looking at stones we embedded, are the t	□ Other <u>hora</u>
WATER QUALITY Temperature° C Specific Conductance Dissolved Oxygen pff Turbidity WQ (astrometat Used				□ Fishy Water Surface Oils	© Chemical © Other © Globs © Flecks casured)	
INC	RGANIC SUBST				ORGANIC SUBSTRATE Co	
Sabs o a ce Type	Diameres	-	% Composition in Sampling Reach	Sobstrate Type	Characteristic	% Composition in Sampling Area
Bedrock Boulder	> 256 mm (10")) -		Detrious	sticks, wood, coarse plant materials (CPOM)	/50
Cobble	64-256 mm (2.5"	mm (2.5"-10") 45		Muck-Mud	black, very fine organic (FFOM)	
Sand Silt Clay	0.06-2mm (gritty 0.004-0.06 mm				grey, shell fragments	

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

STREAM NAME Lawel Fork	LOCATION @ Upper Laurel Fork Rd
STATION#_4 RIVERMILE	_ STREAM CLASS
LATLONG	_ RIVER BASIN
STORET#	AGENCY EPA
INVESTIGATORS	
FORM COMPLETED BY Howard Wella	DATE 5/3/00 REASON FOR SURVEY TIME 0915 AM PM KY MTM/VF

	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
()	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags) submerged logs, undercut banks, ceable or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat: lack of habitat is obvious: substrate unstable or licking.
4	SCORE	20:: 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5' 4 3 2 1. 0 »
to be evaluated in sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 15% surrounded by fine sediment.
	SCORE	20: 19: 18- 17 16	15 14 13 12, 11.	10 9 8 7 6	5 4 7 2 2. 1 0
ers to be evalua	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, signessfallow) [astigated] (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/depth regime (usually slow-deep).
-				5.	2.5. 4. 3. 2. 1. 0s
1	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools aimost absent due to substantial sediment deposition.
	SCORE	20: 19 18 17 16	15 14 13 12 11	10. 9 80 7. 6	5 4(3/2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount a i channel substrate is exposed.	Water fills >75% uithe available channel: or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE	20 19 18 17 16	15 14 13 12 11.	10. 9 8 7 6	5. 4. 3. 2. 10. 0

Charles Sales and

Habitat						Co	nditio	ategor	у						
Paramete		Opti	mal		Sub	optimal			Margina	d	_		Poo	r	
5. Channel dredging absent or minimal: stream with normal pattern. produced by the product of th			Some chan present. us of bridge a evidence o channelizat dredging, (past 20 yt) present, bu channeliza	uaiiy in butmen i past iion, i.e greater may be t recent	areas is; ihan	extensive or short oresent and 40 t	lization receive; ethiban ng struct on both to 80% on both to some on annelized.	nkments ures banks; if stream	3 3 1 1	lanks sh abion o 30% of t hannelii isrupted abitat g emoved	r cent he su żed a i. ins reatly	ient; (eam i nd srrenn / alter	reach 1		
SCORE								1 0 9	9 3	7	6	5 4	3	2	1 0
7. Frequency Riffles (or be	of rands)	Occurrence of elactively from the stream of	equent; it do y win <7:1 to 7); bitat is there of the us, fould the matural	ano dth key. fles)courrence offrequent erween in by the wid tream is b 5.	: distan: ffles dir th of th	te /ided e	bend: b provide distant divided	onal riffle ottom co some ha e betwee l by the v am is be	ntiours abitat; n niffles width of	С Н Г	Generall or shallo nabitat; iffles di viath of ratio of	ow ni distan ivideo the s	fles; p nce be d by t	oor :tweer he
SCORE		20 19 1	3 (7	<u>)</u> 16	15 <u>l</u> 4	13 1	1 1 1 1	10	9 R	7	6	5 4	3	2	1 0
SCORE 8. Bank Stab (score each be note: determine or right side to facing downs score SCORE 9. Vegetative Prorection (seach bank)	ility ank) ne left	Banks stable: evidence of erosion or bank failure absent or minimal: little potential for future problems.		ntial	vioderate, nfrequent prosion m over. 5-3 reach has prosion.	. small ostly h ૦% of દ	areas of i pled ank in	60% of areas o	arely uns f bank in if erosion i potenti:	reach h: 1; hìgh	3	Unstabl areas; "i frequen sections obvious 60-1009 erosions	raw" talor and bani % of	areas ig sur benda k slou bank	iight s; ghing;
SCORE	7	Left Bank	10	9	(8)	7	6	5	4			2 .		1	0
\$CORE	(RB)	Right Bank	10	9	а	7	(6)	5	3	3		2		1	0
	score	Mare than streambank immediate covered by yestarion or nonwood macrophyre disruption grazing or minimal or almost all co grow na	surface riparian native includi story ships: vege: through mowing not evidens all arraily.	s and zone ng ng bs. tative denr: lowed	70-90% c streambar covered by vegetatio plants represence vident b full pianr potential extent: m half of th stubble h remainin	nk surfa by nativen, bur O is not wed: disr ut nor a growth to any pore than e poten eight	ene clas rell- upuon ffectin great	stream covered disrup patche closel vegeta than o potent heigh	% oithe abank sur bank sur bank sur bare ton obvies of bare y cropper attorn comme-half cial plant tremaini	etation; ious: e soil or d arnon; le of the stubble	:S!	Less this streamly covered disrupt vegetar vegetar remove 5 centura veragi	bank by vion o con is con hed to	surfac vegeta istrea s very as be	ces ation; amban; high; en
SCORE		Left Bank		<u> رو)</u>	 -			 			 -				
SCORE	(RB)	Right Banl	k LO	9	8	7	(G)	5	4	3	-	2		I	0
10. Riparia Vegetative 2 Width (scor bank riparia	Zone e each n zone)	Width of ri >18 meters activities (i lots, roadb cuts, lawns have not ir	i; humar i.e., parl eds, cle: i, or cro	n cing hr- ps)	Width of 12-18 m activities zone onl	eters; hi have it y minin	nman mpacted nally.	6-12 activi zone	n of ripar meters; h ties have a great d	numan : impacti enl.	ed 	Width <6 me riparia to hum	ters: n v∈⊱	little (gemno ctiviti	or no on due es.
SCORE	(LB)	Left Bank	_ المول	9	8	7	6.	5	4	3		2		I —	0
					(8)										

STREAM NAME	Laurel Fork	LOCATION (a Verger Fairel Fork Rd.
STATION d	RIVERMILE	STREAM CLASS
LAT	LONG	RIVER BASIN
STORET#		AGENCY EPA
INVESTIGATORS	Howard levelar	
FORM COMPLET	ED BY	DATE 5737 CO REASON FOR SURVEY
Hound	well-	OTIS EMPM KY MTM/UF

TE LOCATION/MAP	Iraw a map of the site and indicate the treas sampled
	Px # 14,15,16
	, ,
\ <u></u>	
HABITAT TYPES	indicate the percentage of each habitar type present □ Cobble % □ Snags% □ Undercut Banks% □ Sand%
	□ Cobble% □ Snags% □ Undercut Banks% □ Sand% □ Submerged Macrophytes% □ Other ()%
STREAM	Springer Classification Stream Type
CHARACTERIZATION	☐ Perennial ☐ Intermittent ☐ Tidal ☐ Coldwater ☐ Warmwater

RIPARIAN ZONE/ INSTREAM FEATUR	Local Chap Coby Canop	midant Surrounding Lanst St	no ai sources	Local Water Erosion Shone Moderal Estimated Stream W Estimated Stream D Ridle 3 - / O' mighty Pool / mighty Velocity / D Channelized Q Y Dam Present Q Y	riden Heavy fiden Market for Security agent 100 m cs 200
RIPARIAN VEGETA (18 meter buffer)	Q-₹(c)		hrubs '	ominant species present Grasses Heat	anks dogwood
AQUATIC VEGETA	⊒ Rox ⊒ Flo domin	ite the dominant type and ted emergent 28	d record the de looted submerg	ominant species present enr - Rooted floating - C	2 free Floating
SEDIMENT/ SUBST	RATE Odor	primai D Sewage	Anaerobic None Relief shells Ofther Cotal Looking at stones which are not deeply embeddfid, are the undersides black in		
WATER QUALITY	Speci Disse pH _ Turt	perature 13.66°C diffic Conductance 1550 dived Oxygen 9.54 7.64 biddity	j	Water Odors Normal/None 3 Petroleum Fistry Water Surface Oils Slick Sheen None Other Turbidky (if not m Clear Slight Opaque Water	Chemical Cother Giobs Ci Fiecks Essured) Ty purbid Turbid
	SUBSTRATE	COMPONENTS (00%)		ORGANIC SUBSTRATE C	
Substrate f	inmeter	% Composidos in Sampling Reach	Sobstrace Type	Characteristic	% Composition in Sampling Area
Boulder > 256 ms		20	Detrinus	sticks, wood, coarse plant materials (CPOM)	15
· · · · · · · · · · · · · · · · · · ·	um.(2.5"-10") (0.1"-2.5")	40	Muck-Mud 4-	black, very fine organic (FPOM	coal fins
Sand 0.06-2m	n (gritty)	20 10 BI	Mari	grey, shell fragments	
Silt 0.004-0,		10	1		
	mm (slick) RACTERIZA	I TION/WATER QUA	LITY FIEL	D DATA SHEET (BACK)	

STREAM NAME Frigak Fork	LOCATION Fregok Fork Rd
STATION # STATION # RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN
STORET#	AGENCY EPA- INDOW
INVESTIGATORS / June / weldon	1Ca11;
FORM COMPLETED BY	DATE 572/00 REASON FOR SURVEY
Howard et al	TIME 1305 AM PM) KY NTM/VF

TT 1.		Condition	Category	
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover		40-70% mix of stable habitat; well-suited for fuil colonization potential; adequate nabitat ier maintenance of populations; presence of additional substrate in the form of newfall, bur not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less rhan 20% stable habitat: lack of habitat obvious: substrate unstable or lacking,
SCORE	.20.: 19. 18. 17 16	15 14 1 3 1 2 . [1	10 9 3 7 6	.5 4- 3 2 I
2. Embeddedness	Gravel, cobble, and	Gravel, cobblc. and	Gravel, cobble, and	Gravel, cobble, and
SCORE				
3. Velocity/Depth Regime	deep, slow shallow, deep, (slow is < 0.5 m/s, deep is > 0.5 m/s, deep	regimes).		
SCORE	20% 19% 18% 17% 16.	15 14 13 12 11	10 97 87 7 7 6	5 ₀ 4 3 . 2 Γ.
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	50% of the bottom changing frequently; pools almost absent d to substantial sedime deposition.
SCORE	20: 19: 18: 17: 16	15 14 13 12 11	10. 9 8- 7. 6	5- 4 3. 2 E
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20, 19, 18, 17, 16	15: 14: 13. (12)11.	10 9 8 7 6	F 57 4: 3 22 1

· · ·		Condition Category										
Habitat Parameter	Optimal	Suboptimal	Marginal	Роог								
6. Channel Alteration	Channelization or dredging absent or minimal; stream wirh normal pattern.	Some channelization present. usually in areas oibridge abutments: cvidenca of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present an both banks; and 40 to 80% of stream reach channelized and disrupted.	Ranks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.								
SCORE	20 19 (18 / 17 16	6/15 14 [3 [2]]	10 9 8 7 6	5 4 3 2 I 0								
7. Frequency of Rimes (or bends)	Occurrence of riffles relatively frequent; ratio of distance between iffles divided by width f the stream <7:1 generally 5 to 7); ariety of habitat is key. 7 streams where riffles re continuous. lacement of boulders or ther large, natural batruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between fifles divided by the width of the stream is a ratio of >25.								
l	10 19 (18) 17 16	15 14 13 12 11	10 9 \$ 7 6	5 4 3 2 1								
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank alture absent or ninimal; little potential or future problems. 15% of bank affected.	vioderately stable: nfrequent, small areas of crosion mostly healed over. 5-30% orbank in each has areas of rosion.	Moderately unstable; 30 i 60% oibank in reach ha areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas irequent along straight sections and bends; obvious bank sloughin 60-100% of bank has erosional scars.								
SCORE (RB)	Left Bank 10 9	3 (7) 6	5 4 3	2 1 0								
SCORE (RB)	Right Bank 10 (9)	/	·	•								
9. Vegetative Prorection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing	covered by native vegetation, but one class of plants is not well-represented; disruption potential to any great extent; more than one.	parches of bare soil or closely cropped potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation disruption of streamba vegetation is very high vegetation has been average stubble height								
	minimal or not evident; almost ail plants ailower to grow naturally.	half of the potential pla stubble height remaining.	nt									
SCORE (LB)	Left Bank 10 9	3 7 6	5 4 3									
SCORE(RB)	Right Bank 10 (9)											
10. Riparian Vegetative Zone Width (score cach bank riparian zone)	Width of riparian zone > i8 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone		Width of riparian zone 6-12 meters; human d activities have impacte zone a great deal.	to human activities.								
SCORE(LB)	Left Bank: 10 9	8 7 6	5 4 3	(2) 1 0								
\$CORE (RB)	Right Bank, 10 9	8 (7) 6	5 4 3	2 1 0								

Total Score 138

	LOCATION Fuggle Fork Rd
STREAM NAME Tright Trib	STREAM CLASS
311(1131(1))	RIVER BASIN
LAT LONG	AGENCY EPA / KY DOW
STORET#	
INVESTIGATORS Howard wellow	DATE 3 2100 REASON FOR SURVEY
FORM COMPLETED BY	1305 AM PM MTM/VF - Kg
Howard/Wellon	
SITE LOCATION/MAP Draw a map of the s	ite and indicate the areas sampled
	4
pix 7	<i>1 ⁰</i> 1.
` "∥	
	name of each habites type of esent
111,	contage of each habitat type present
Ø Cobble	% 1 Snags% 1 Olina ta Sunta
☐ Submerged Ma	
STREAM Subsystem Class	Stream Type Greenitest Tidal Coldwater
CHARACTERIZATION Transmit	- Mariane

	D DATA SHEET (BACK)	1313 7.1.1	ALIO WATTAWONDE		
		1		< 0.004 mm (slick)	Clay
			<u> </u>	mm 30.0 +00.0	162
	Srey, sited tragments	has M	QE.	(एमंग <u>्</u> य) स्माग्र - 90.0	bns2
			-57	("2.5-"1.0) nnn +è-1	טתאכו
	black, very fine organic (FPOM)	tynyγ-x⊃ny√	<i>G</i> -J-,	(-01-"2.5) min 82548	⊃iddo⊃
20	materials (CPOM)		_7/	(*01) mm 9c2 <	≃b(μo8
	sticks, wood, coarse plant	zmirp>G			Sedrock
guilqmač ni nopitoqmoD % tenA.	operaceriza (Substitute adyT	ooinieogma⊅ % Compiling Reach	Diameter	Type Type
	ORGANIC SUBSTRATE CO			GCANTC SUBSTRATE (ואס
inch are not decply inch are not decply aderaides black in color? O Chemical O Order O Chemical O Order O Clobs O Piecks Turbid Turbid Turbid	☐ Restict shelts ☐ Leoleing at stoness wh ☐ Cooleing at stoness wh	титэјотэч D Эрой D	a of the reach with veger that a Sewage that a Sewage that a Silight a Moder of Silight a Sewage of Siligh	SUBSTRATE Odds TANTERUS VI TO CO T	AVIEK Ó
გ ರ್ಯಾಂಟ ಎನ್ನು		t record the de Smortus betoo Begil Abstracti		16001 E	. эшүлдү
	· · · · · · · · · · · · · · · · · · ·		int species present	ninob	
, 5110521	taseste present Exemble Exemple D'Active	्रेट्टियम् । इत्याप	c the dominant type and	VECETATION (ndicate	NAIRASIRI 10 122±00 (11)
2007 Frank 100 m	7 - 1 - 2 - 1 - 2 - 1 - 2 - 1 - 2 - 2 - 1 - 2 - 2	12) (2) (2) (2) (2) (2) (2) (2) (2) (2) (تعمر ⊂ اndusari سائنستا _ Other	Total Display Control of Figure 1 Program Variation Control of Con	MAJATEN MAJATEN

STREAM NAME 5, MS FORK	LOCATION @ SIME FORK RD
STATION# (RIVERMILE	STREAM CLASS
LATLONG	RIVER BASIN
STORET#	AGENCY EPH KY DOW
INVESTIGATORS	
FORM COMPLETED BY	DATE 5/3/00 TIME 1500 AM EN REASON FOR SURVEY LY MTM VT

	Habitat	_	Condition	Category		
	Parameter	Optimal	Suboptimal	Marginal	Poor	
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undereut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
_	SCORE	20. 19. 18 17 (16) 15 14 13 IZ 11	10 9 \$ 7 6	5 4 3 <u>2</u> 1 0%	
Parameters to be evaluated in sampling reach	2. Embeddedness	Gravel, cobble, and boulder panicles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by tine sediment.	Grave), cobble, and boulder particles arc 50-75% surrounded by tine sedirnent.	Gravel, cobble, and boulder particles are more than 75% surrounded by tine sediment.	
i Ea	SCORE	20 19 18 17 16	15 14 (3) 12. 11	10 9 8 7 6	.5. 4 3. 2: F. 0:	
ers to be evaluat	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, (ast-shallow) (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ deprh regime (usually slow-deep).	
met	SCORE	207. 197 1817 - 16	· 15. 14 13 12. 11.	10 9 8 7 6	(5) 4 3 2 I 0	
Pare	4. Sediment Deposition	Little or no enlargement and less than 5% of the bottom affected by sediment deposition.	Some new increase in from gravel, sand or fine sediment: 5-30% of the bottom affected: slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars: 30-50% of the bottom affected; sediment deposits at obstructions, and bends; moderate deposition of pools prevalent.	50% of the bottom changing frequently; pools almost absent due to substantial sediment	
	SCORE	20. 19 18 17 16	15 14 13 12 (1)	10. 9 8 7. 6	5 4 3 2 E 0	
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
	SCORE	20 19 718 (17) 16	T5 I4 13 12 11	10 9 8 7 7	5: 4: 3: 2- 1: 0	



	77 1 /			Cond	ition (Category		-			
	Habitat Parameter	Optimai	Subo	ptimai		M	iarginal			Poor	
	i. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some chann present, ust of bridge all evidence of channelizat dredging, (1 past 20 yr) present, bu channelizat present.	nally in are cutments; i past fron, i.e., greater that may be t recent	ess	extensive; embankments or shoring structures present on both banks; and 40 to 80% af stream reach channelized and			Banks she gabion or 80% of the channelize disrupted habitat gr remove:	centent: ne stream ed and . Instream eatly alte	over reach
		20 19 18 (17) 16	15 14	13 12	11	10 9	8	7 6	5 4	3 2	1 0
	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance beween riffles divided by width o / the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or either large, natural obstruction is important.	Occurrence infrequent: beween ri by the widi suream is b 15.	disrance ffles divid th of the	ed	Occasion bend: bo provide s distance divided the streng 25.	ttom con some hab between by the wi	tours icat; riffles dth of		w riffles; listance b vided by the stream	poor etwee the
	SCORE	20 19 18 17 (16	15 l4	13 12	11,	10 9	3	7 6	5 1	3 2	1 (
	8. Bank Stability (score each bank) Note: determine left or right side by heing downstream.	Banks stable; evidence of erosion or bank ailure absent or minimal; little potential for future problems.	Moderatel infrequent erosion mover. 5-30 reach has erosion.	. small ar ostly heal 0% uiban	ed	50% of t treas oid	ely unsta bank in r erosion: potential	each has high	areas; "r frequent sections obvious	t; many e aw" areas along st and bend bank slo 6 of bank 1 scars.	s aight is: ughin
	SCORE(LB)	Left Bank 10 9	3	7	6	5	a	3	2	ļ	0
	SCORE(RB)	Right Bank 10 9	1 (8)	7	6	วี	4.	3	2	l	0
	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate mparian zone covered by narive vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or nor evident; almost all plants allowed to grow naturally.	vegetation of plants represente evident b full plant potential extent; m half of the stubble h remaining	nk surface y nanve b, but one is not well ed: disrup ut not affe growth to any gre ore than of potentia eight	class tion eting at nc- plant	covered disrupti patches closely vegetati than on potentia height	ank surfa by vege on obvio of bare s cropped ion comme e-hnlfaf at plant s emaining	tation: us; soil or non; less the nibble	streamb covered disrupti vegetati vegetati remove 5 centir average	neters or stubble	ces cation; camba y high cen less in
-	\$CORE(LB)	Left Bank 10 9	(3)	7	6	5	-4	3	2	1	0
	SCORE(RB)	Right Bank 10 9	(3)	7	6	5	4	3	2	T	0
	10. Riparian Vegetative Zone Width (score each bank riparian zone	Width of fiparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear- cuts, lawns, or crops) have not Impacted zone.	12-18 me activities zonc oni	iripanan z iters; hum have imp y minimal	an acted	6-12 meters; human			<6 met ripariar to hum	of riparia ers: linie i vegetati im activi	or no ion du ries.
	SCORE(LB)	LeftBank 10.	Δ	7	6	5	4	3	2	1	0.
	SCORE (RB)	Right Bank 10 9	8	Ð	6	5	5	3	7 2	I	0

Total Score 144

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET(FRONT)

STREAM NAME / M.S. 7	zvik LO	CATION @ 51Mg "	Fruh Pl	BVIRED.	
STATION # / RIVER		REAM CLASS		7-	
LAT LONG	RIV	VER BASIN			
STORET#	AC	ENCY EPA //c	4 Dow		
INVESTIGATORS Horan	Plue Con 10	Call		<u> </u>	
FORM COMPLETED BY	DA		REASON FOR SUR MTM/		
		d indicate the areas sampled			
		- upstream I	mid pt		
HABITAT TYPES	<i>[</i>]	e of each habitat type present 1 Snags % C Underent tres % C Other (\$and%	
STREAM CHARACTERIZATION	Subsystem Classificati		Stream Type Coldwater	© ₩armwater	

RIPARIAN 18 meter bi	S:S	Deformation of the control of the co	Pasture altitural Cother / central Cother / central Cother / central Cother / central Cother / cother Cothe	bank) sources Shade	Estimated Stream De Califfe 6-10" m Pool m Velocity 125 m Estimated Reach Ler Chauselized 2 Ye Dam Present 2 Ye	dth ZA m ft, print Run 1 m Sec Sec Sec Sec Sec Sec Sec Sec Sec Se
ZITAUDA J	EGETATION	□ Root □ Fical domina	ant species present	ooted submerge miched Algae	enr 🗅 Rooten doannig 🗔	Free Floating
SED(MEN	/SUBSTRATE	Odors Gradon Gradon Gradon	nai 🖸 Sewage picui 🖸 Anserobie	□ Peroleum □ Noze	Deposits	☐ Paper fiber ④Sánd
		Oils	eax □ Slight □ Moder	aus ⊈Prod	Looking at stones with controlled are the united ar	nich are not deepty adersides black in color?
WATER Q	UALITY	Specif	erature <u>/8,57</u> C le Canductiace <u>42-9</u> ved Oxygen <u>5,5</u> 2	_	Water Odors ⊇ Normi/None □ Se □ Perroleum □ Fishy	awage
		p £ f _≤	7.14	,	Water Surface Oils O Slick O Shom D Notic O Other	□ Globs □ Flecks
_		WQ I	dity	1 devlas	Turbidity (if act me I Clear I Slighth I Opaque I Water	y turbid Saffurbid
INO	RGANIC SUBST				ORGANIC SUBSTRATE Co	
Substrate Type	Diameter		% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition is Sampling Area
Bedrock				Detritus	sticks, wood, coarse plant	(11)
Boulder	> 256 mm (10")		30		materiais (CPOM)	210
Cobble	64-256 mm (2.5"	10")	30	Muck-Mud	black, very fine organic (FPOM)	
Gravei	2-64 mm (0.1"-2.	5")	15			
Sand	0.06-2 mm (gridy))	15	Mari	grey, shell धिअञ्चलकारः	
Siit	0.00 4 0.06 mm		10	1		
Clay	< 0.004 mm (slic				D DATA SHEET (BACK)	

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK

STREAM NAME Spring FK / Duicksand	LOCATION or confluence with strugber Ch
STATION# 7 REVERMILE	STREAM CLASS
LATLONG	RIVER BASIN
STORET#	AGENCY EPA / KY DUW
INVESTIGATORS / Jone / Welden/	Cull
FORM COMPLETED BY	DATE 2/2/60 REASON FOR SURVEY
Howel juella-	TIME TOUS AND PM MIM/UF

	TT - L '		Conditio	Category	
	Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Grenrer than 70% of substrate favorable for epifaunal colonization and fish cover: mix of snag. submerged logs, undercut banks, cobile or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations: presence of additional substrate in the form of newfall, bur not yet prepared for colonization (may rare at high end of scale).	20-40% mix of stable habitat; habitur availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable - habitat; lack of habitat is obvious; substrate unstable or lacking
	SCORE	20. 19 18 17 16	15 14/19 12 11	10 9 \$ 7 6	5 4 3 2 1 0:
	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
3	SCORE	20 19 18 17 16	IS 14 (3) 12. (11)	10 9 8 7'. 6	. 5.' 4 32 1 0
L'AI AINISICI A UN DE CTATINESE	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast deep, rast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slowdeep).
12	SCORE	20 19 13 17 1	15 14 13 12 11	10 (9-) 8. T 6-	5 4 3 2 1 0
H 18.1	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% afrhe bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or line sediment; 5-30% of the bortom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected: sediment deposits at obstructions, and bends: moderate deposition of pools prevalent.	50% of the bortom changing frequently; pools almost absent due to substantial sediment
	SCORE	20. 19 18 17 16	15 14 13 12 11	10. 9 (8.) 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base oi both lower banks, and minimal amount of channel substrate is exposed.	Water fills > 75% of the available channel: or <25% of channel subserare is exposed.	Water rills 25-75% of the available chmnel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE	20. 19 18 (17) 16	6. I5 1.4 13 12 11	10 9 8 T 6	5. 4, <u>3</u> , <u>2</u> , <u>1</u> , <u>0</u> ;

	77 - Line		₹ Condition	Category	
	Habitat Parameter	Optimal	_ Subo ptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present. usually in areas of bridge abutments; evidence oipast channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks: and 40 to 30% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE	17 16 مر <u>81) 19</u> 20	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
pling reach	7., Frequency of Riffles (or bends)	Occurrence of nifles relatively irequent: ratio of disrance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where nifles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or tlend; bottom contours movide some habitat; distance between riffles divided by the width oi the Stream is between 15 to 25.	Generally all flat warer or shallow riffles; poor habitat; disrance between riffles divided by the width of the stream is a ratio of >25.
H S I	SCORE	20 19 (18) 17 16	15 14 13 12 11	10 9 3 7 6	5 3 3 2 1 0
Parameters to be evoluated broader than sampling reach	Bank Stability score each bank) lote: determine left it right side by acing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-50% ofbank in reach has treas of erosion; high groston potential during floods.	
Cy al	SCORE(LB)	Left Bank 10 9	8 (7) 6	5 4 3	2 1 0
a be	SCORE(RB)	Right Bank 10 9	8 7 1 6	5 4 3	2 1 0
Parameters	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	remaining.	parches oibare soil or closely cropped vegetation common: less thin one-half of the potential plant stubble height remaining.	5 centimeters or less in average stubble height.
-	SCORE(LB)	Left Bank 10. 9	8 7 6	5 4 3	2 1 0
	SCORE (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
	10. Riparian Vegetative Zone Width (score each Sank riparian 2000)	Width oinpartan zone >18 meters; numan activitiese., parking lots, roacbeas, :====================================	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacred zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
	SCORE (LB)	Left Bank 10 9	8· I 6	5 4. 3	(2/ 1 0
	SCORE(RB)	Right Bank 10 9	a 7 6	(5) 4 3	2 1 0

Total Score 131

PHYSICAL CHARACTERIZATION WATER QUALITY FIELD DATA SELECTION (FRONT)

STREAM NAME Some FK/ QUICKS and LOCATION (Q Count). With Hughes Ck

STATION # 7 RIVERMILE		STREAM CLASS				
LATLO	NG	RIVER BASIN				
STORET# ,		AGENCY EPA /KYDOW				
INVESTIGATORS How	ul/wellon/Co				·····	
FORM COMPLETED BY	'	DATE 5/2-/00	REASON FOR 5			
Hourd tue	l.J.	1020 AND PM	MTM/V	=		
SITE LOCATION/MAP	Draw a map of the si	ite and indicate the areas sampled	i			
	Þι×	2,3				
٠-						
HABITAT TYPES	Indicate the percen	ntage of each habitat type present		 	<u></u>	
	□ Cobble%	□ Snags% □ Undercut	Banks%	☐ Sand%		
	☐ Submerged Macro	ophytes% 🖸 Other ()%		
STREAM CHARACTERIZATION	Subsystem Classifi		Stream Type ② Coldwater	~@Warmwater		

RIPARIAN INSTREAM	ZONE/ FEATURES —	Canopy Canopy Canopy	Pasture Industria interal Other_/ initial (aterafied NPS Pollution idence Some potential us sources	reial Surf / P/B 1 Sources C Shade	Estimated Stream De Cariffe O'S pictor Poolm Velocity 2.5 m	oth 15 of ft peth Run 1 or ft see (f1se geth 102 m s 5No			
RIPARIAN (18 meter bi		(471 n=		Zrīpa	☐ Grasses ☐ Herb	RCeQu5			
AQUATIC	VEGETATION	Indicat O Rest O Float domina	Indicate the dominant type and record the dominant species present Record emergent Rooted submergent Rooted floating Pree Floating Floating Algae Rooted Algae						
SEDIMEN	T/ SUBSTRATE	Oders Driver Chen Dribe	nal C Sewage mical C Anaerobic	□ Petroleum □ None	Deposits Sindge Sawdus Reflet shells Looking at stones we embedded, are the u	T Paper fiber Sand Cher hich are not deepty adersides black in color?			
WATER Q	UALITY	Specif Distot pH	erature /5.0/°C le Conductanec 480 ved Oxygeu 91/7 1/5 dicy	į	Water Odors G-Normal/None G S G-Petroleum G-Fishy Water Surface Oils G-Slick G-Sheen G-None G-Other Turbidity (if apartic G-Clear G-Slight G-Opaque G-Water	□ Chemical □ Other □ Globs □ Flecks :asured) y turbid □ Turbid			
INC	RGANIC SUBS		OMPONENTS 00%)		ORGANIC SUBSTRATE C				
Substrate Type	Diamete	r % Composition in Sampling Reach		Substrate Type	Characteristic	% Composition in Sampling Area			
Bedrock	,			Detritus	sticks, wood, coarse plant materials (CPOM)	10 _			
Boulder	> 256 mm (10")	100		Naturalia Natural					
Cobble	64-256 mm (2.5 2-64 mm (0.1*-2		70	Muck-Mud	black, very fine organic (FPOM)	10			
Gravel Sand	0.06-2mm (gritt)		30	Mari	grey, shell fragments				
Silt	0.004-0.06 mm	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	70	1,	3,				
Clay	< 0.004 mm (site	ek)	<u> </u>	ī	i	1			
			TION/WATER QUA	LITY FIEL	D DATA SHEET (BACK)				

STREAM NAME LOST MEEK	LOCATION D 1446
STATION # 9 RIVERMILE	STREAM CLASS
LATLONG	RIVER BASIN
STORET#	AGENCY
INVESTIGATORS LA JM. JA 56	
FORM COMPLETED BY	DATE 5-2-60 TIME 1530 AM FM REASON FOR SURVEY

	II 1'4.4		Conditio	Сатедогу	
	Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations: presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious: substrate unstable or lacking.
ac il	(SCORE 17	20 19 18 (17) 16	I5 14 13 12 11	in 9 8 7 6	4 3 2 1 0
aluaed in sampling cac	2. Embeddedness	Gravel. cobble, and boulder particles arc 0-25% surrounded by tine sediment. Layering of cobble provides diversity of niche space.	Gravel. cobble. and boulder particles are 25-50% surrounded by time sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by tine Sediment.	Gravel, cobbie, and boulder particles are more than 15% surrounded by fine sediment.
2	SCORE	20 19 18 (17) 16	1 <i>5</i> 14 13 12 11.	10 9 8 7 6	
o bev	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep slow-shallow), fast-deep: (as 5.3 m/s, deep is > 0.5 m.)	Only 3 oirhe 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low):	Dominated by 1 velocity/ depth regime (usually slow-deep).
Parametes	SCORE 15	20 19 18 17 16	15 14 13 12 11	1 0 9 8⊱ 7 €	√5-4 3 <u>.</u> 2 1 0≝
Pari	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom aifected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom aifected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old Qudnew bars; 30-50% oirhe bottom affected; sediment deposits at obstructions, consmctions, and bends moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than \$0% of the bottom changing frequently: pools almost absent due to substantial sediment deposition.
	SCORE 1	20: 19 18 17 16	. 15 (14) 13 12 11	10 9 8 7 0	5 4 3: 2 L 0"
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE 18	20. 19 (18) 17 16	. 15 14 13 12 11	10. 9: "8:[7"[6	5 4 3 2 1 0

ITabirat			<u>C</u>	andition	Category	у				
Habitat Parameter	Optimal	Su	boptima	1		Marginal			Poor	
6. Channel Alteration	nnel dredging absent or minimal; stream with normal pattern. dredging absent or minimal; stream with normal pattern. present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is nor				extensive or shoring present (and 40 to	ization mi e; embani ng structus on both ba o 30% of annelized d.	iments res inks; stream	gabion o 80% of t channeli disrupted habitat g	ored with r cements he stream zed and d. Instrea reatly alt entirely.	; over 1 reach 1m ered o
, ,,,,							,			
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent: rano of distance between riffles divided by width the stream <7:1 generally 5 to 7); ariery of habitat is key. In streams where riffles re continuous, lacement of boulders of their large, natural ibstruction is important.		it: distar ri ttles di idrh of th	vided 1 e	bend; be provide disrance divided	onal diffe ottomcon some hat be between by the wi am is bety	tours ntat; ntîles drh ot	or shallo habitat: nffles d	y all flat ow nifles; disrance ivided by ithe strea >25.	; poor between the
SCORE 18	10 19 (13) 17 Id		13	12 11	10 9	 -	7 6	5 4	3 2	l
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence if crosion or bank allure absent or minimal; little potential for future problems. <5% of bank affected.	Moderal intreque crosion uver. 5- reach ha erosion.	nt, small mostly h 30% of is areas o	la reas of enled bank in	60% of areas o	itely unsta bank in t ierosion: potential	each has	frequent section obviou	e; many i raw" area it along si s and ben s bank slo % or ban	us traight ds: oughin
SCORE (LB)	f.eft.Bank 10 9	(8)	7	6	5	4	3	2	I	0
SCORE 10(RB)	Right Bank (0)							•		
9. Vegetative Protection (score each bank)	More than 90% of rhe streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or nor evidentialmost all plants allowed to grow naturally.	covered vegetar of plan represe evident e full pla potenri extent half of	ank surfles is not so is not	ve one class well- ruption affecting h	stream coveredisrup parche closely vegeta than o potent height	% of the bank surf of by vegetion obvious uibare y cropped inon cornine-nalf of its left and plant stremainin	tation; hus; soil or non; less the stubble	stream covere disrupt vegeta vegeta remov 5 centi	an 50% of bank surfid by vege ion of strict toon is vege toon has bed to meters or e stubble	aces etamon eambo ry high been r less i
SCORE (LB)	Left Bank 10 9	3	7	G	5	3	3	2	1	C
SCORE (h (RB)	Right Bank 10) 9	8	7	6	5	4	3	2	I	(
10. Riparian Vegesative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds. clear- cuts, lawns, or crops) have not impacted zon	12-18 activit zone c	of ripari meters; l es have nly mini	numan impacted	6-12 i	n of riparioneters; he ties have a great de	:man impacted	<6 me	of ripari eters: little an vegeta nan acriv	e or no
SCORÉ 10(LB)	Left Bank 10.	9- 8-	7	6.	5	4	3	2	1.	
SCORE (RB)	Right Bank 10	9: 8	7	(⁶)	5					

STREAM NAME 1056 CIGEL	LOCATION	@ 1446
STATION4_Q RIVERMILE	STREAM CLASS	
LAT LONG	RIVER BASIN	
STORET #	AGENCY	
INVESTIGATORS W,JM,JM SW		
FORMCOMPLETED BY	DATE 5-2-00	AM (M)

10	
SITE LOCATION/MAP	awa map of the site and indicate the areas sampled photo #5 down photo #6 4P
HABITAT TYPES	Indicate the percentage of each habitat type present Sobble 45 % Stags 15 % Staderout Banks 10 % Stade 20 % Submerged Macrophytes % Sother (CPOM) 10 %
STREAM CHARACTERIZATION	Subsystem Classification Stream Type Ci Perennial

1	FEATURES VEGETATION	Predominant Sarrounding Landuse Protest			Channelized Q Y. Dam Present Q Y. Deminant species present Q Grasses Artest	of the avy idthm prh PRun5_m USec		
AQUATIC	VEGETATION	Indicate Carlost Carlost dominat	e the dominant type and entergent DR ing Algue SA	secord the de poted submorge mached Algae	ominant species present ant A Rooten Boaring C	Free Floating		
SEDIMENT/ SUBSTRATE		Portion of the reach with vegetative cover 70% Odors St. Normal Sewage Petroleum Chemical Anserobic None Cother Odle			Deposits Sludge Sawdus Relict shells Looking at stones we embedded, are the	Deposits Sludge Sawdust Paper liber Sand Relict shells Other Looking at stones which are not deeply embedded, are the undersides black in color?		
WATER QUALITY		Specif Dissoi pH Turbi	eratureaC ic Conductance wed Oxygen dity	· 1	Water Odors Priormal/None S Petroleum Fishy Water Surface Oils Slick Sheen None Other Turbidity (if act m Octear Stight	Chemical Cotter Clobs Ciflects casured) y turbid Cirubid		
INORGANIC SUBS					ORGANIC SUBSTRATE C			
Substrate Type			Substrate Type	Characteristic	% Composition in Sampling Area			
Bedrock	ck		Detrinus	sticks, wood, coarse plant materials (CPOM)	100			
Boulder	> 256 mm (10")	.00		Denote New 4		100		
Cobble	64-256 mm (2.5"		<u> </u>	Muck-Mud	black, very fine organic (FPOM)			
Gravel	2-64 mm (0.1"-2.		75	Mari	I may shell fragments	<u> </u>		
Şand	0.06-2mm (graty 0.004-0.06 mm			lviari	grey, shell fragments	}		
Silt				1		1		
Clay	< 0 004 mm (slick)			Į.	1	1		

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

STREAMNAME Clemons Fork	LOCATION ASM 4
STATION\$/ORIVERMILE	STREAM CLASS
LAT LONG	RIVER BASM
STORET#	AGENCY EPA / KYDOUS
INVESTIGATORS	,
FORM COMPLETED BY	DATE 5/2/00 REASON FOR SURVEY TIME 1500 AM W MTM/VF

	Habitat	Condition Category					
	Parameter	Optimal	Suboptimal	Marginal	Poor		
	I. Epifaunal Substrate/ Available Cover	Greater than 70% of. substrate favorable for epifaunal colonization and fish cover: mix of snags submerged logs undercut banks, offible or other stable habitat and at srage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat: well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat: habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
	SCORE	20. (19) 8 17 16'	I5 14 13 12. I1	10 9. 8 7 6	5 4 3 2 1 0		
tawa i Suind	2. Embeddedness	Gravel, cobble, and boulder particles arc 0-25% surrounded by tine scdiment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder pamcles are 25-50% surrounded by tine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder pamcles are more than 75% surrounded by fine sediment.		
7 1131	SCORE	20 L9 18 (1 7) 16	15 14 13 12. 11.	10 9 8 7 6	5/_ 4 3. Z 1 -05		
Farametetste ue cyamateu i	3. Velocity/Depth Regime	All four veiocityldepth regimes present (slow-deep, slow-shallow, fast. deep, tigs-snanow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing score lower than it missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or ;low-shallow are missing; score low):	Dominated by 1 velocity/depth regime (usually slow-deep).		
	SCORE	20 19 18 1 <i>T</i> 16	(1 5 1)4 13 12 11	10 9: 8: 7: 6	5. 4 3. 2 1 0		
3.1 R.1	4. Sediment Deposition	Little or no enlargement of islands or point pars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or line sediment: 5-30% of the bottom affected; slight deposition in pools.	Moderate ecposition of new gravel, sand or fine sediment on old and neu bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends moderate deposition of	Heavy deposits of fine material, increased bar development; more than 50% or the bottom changing frequently; pools almost absent due to substantial sediment deposition.		
	SCORE	20: 19 18 17 16	(15) 14 13 12 II	10 9 8:	5 4 3 2 E 0		
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount oi channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the mailable channel, and/or riffle substrates arc mostly exposed.	Very little warer in channel and mostly present as standing pools.		
	SCORE	20 19 18" 17 (16	15; 14; 13; 12, 11.	10. 9 8 7 6	5 4 3 2 1 0		

Stewarth 1 .

	Habitat :		Condition	Category	
	Parameter Parameter	Optimal	Suboptimal	Marginal	Poor
	Channel lteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is nor present.	Channelization may be extensive; embankments or sharing structures present on borh banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement: over 30% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
}	SCORE	20 (19) 18 17 16	15 14 13 12 11	10 9 3 1 6	5 4 3 2 1 0
,, Quadane meit	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the smeam is between 7 to 15.	Occasional nffle or bend; bettem contours provide some habitat; distance between riffles divided by the width o i the stream is between 15 to 15.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
3	SCORE	20 19 (13) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 l Q
Parameters to be evaluated browner o	Bank Stability (score each bank) Note: determine left or right side by (acing downstream.	Ranks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in rench has areas or' erosion	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high crosion potential during floods.	
2	\$CORE(LB)	Left Bank 10 (9)	3 7 6	5 4 3	2 1 0
21 0	SCORE (RB)	Right Bank 10 9	8 (7) 6	5 4 3	2 1 0
Furameters	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	covered by native vegetation, but one class of piants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant.	patches of bare soil or closely cropped ; vegetation common: less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height.
'	SCORE(LB)	Left Bank 10 (9,	8 7 6	5 4 3	2. 1 0
	SCORE(RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.		zone a great deli.	to human activities.
	SCORE(LB)	Left Bank (10) 9	8 7 6.	5 4 3	2 ì O.
	SCORE(RB)	Right Banic, 10 9	8 7 6	5. 4 3	2. 1 0

Total Score

STREAM NAME Clemons Fork	LOCATION in Rubinson Forest
STATION # /O RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN
STORET#	AGENCY EPA / KYDOW
FORM COMPLETED BY	DATE 5/2/00 AM PM REASON FOR SURVEY MTM VF

-

TE LOCATION/MAP	Draw a map of the site and indicate the areas sampled
	Pix 11, 12, 13
HABITAT TYPES	Indicate the percentage of each habitat type present [Cobble% Grangs% Gundereut Banks% Grand%
	D Submerged Macrophyres% Sother (lef packs)%
STREAM	Subspatem Classification Stream Type Greennial Of Intermittent Of Tidal Ocoldwater Swamwater

			· · · · · · · · · · · · · · · · · · ·					
All Your B. Danished and B.	4,121,121,131,131,131,131,131,131,131,131		mant Surrounding Land Commer Commer Commer Commer Commer Commer Commer Commer Commer Cover Cover Cover	i sources	Local Water Erosion ENone	10th 15-18 ft 1 Run 1 pr fr 1 ft 1 see		
	-	-	ster Mark 15 g		Channelized 🗅 Yes			
RIPARIAN (18 meter bu	VEGETATION (fer)	Dam Present 🔾 Yes 😉 466 Indicate the dominant type and record the dominant species present 🔾 Herbaceous dominant species present						
AQUATIC	EGETATION	Indicate Cl Roote Cl Float domina	e the dominant type and ed emergent	octed submarge mached Algae	·	Free Floating		
SEDIMENT	(/SUBSTRATE	Odoga O Non O Cher O Otte	nni 🗅 Sewage nical 🗅 Anaerobic	☐ Peroteum G Noce	□ Relict shells	☐ Studge ☐ Sawdust ☐ Paper fiber ☐ Şan ☐ Relict shells ☐ Other		
	11	Oils Cabsent O Slight O Moderate O Profuse O Yes Orlo						
WATER Q	YTLLAU	Specif	erature <u>/5, 4</u> °C ic Conductance <u>65,8</u> ved Oxygen <u>9,50</u>		Water Odors 2 Normal/None △ Se 3 Perroleum □ Fishy	2 Normal/None ⊃ Sewage ⊙ Perroteum		
I		plt 7.08			Water Set face Oils 2 Short - 2 Short 2 None - 2 Other	🖾 Globs 🖾 Flecks		
1		Turbi WQ I	dity	drelab	Tyrbidity (if not me Sicher — Slighty O Opsque O Which	y nurbid □ Turbid		
INC		dd up to t	OMPONENTS		ORGANIC SUBSTRATE CO			
Substrate Type	Diamet	er	% Composition in Sampling Reach	Sabstrate Type	Characteristic	% Composition in Samplin Area		
Bedrock				Detricus	sticks, wood, course plant materials (CPOM)	15		
Boulder	> 256 mm (10"			Muck-Mud				
Cabble	Cobble 64-256 mm (2.5				black, very fine organic (FPOM)			
Gravei	2-64 mm (0.1"-		20	124-4				
Zand	0.06-2mm (grit		10	Mart	grey, shell fragments			
Silt	0.004-0.06 man		 	1	·			
Clay	< 0.004 mm (si	IICK)	TYONAY - TER OU	ALITY STEI	D DATA SHEET (BACK)	<u> </u>		

STREAM NAME CORS FOCK	LOCATION @ Buckness C1. Ed
STATION # 11 ~ R RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN
STORET#	AGENCY
INVESTIGATORS LOTMITA, SW	
FORM COMPLETED BY	DATE 5-2-0() AM) PM REASON FOR SURVEY

1	Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobbie or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
_	SCORE	20 19 18 17 16	. 15 14- 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to de evalueieu in sainjuing Ceach	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel. cobble, and boulder particles are 25-50% surrounded by tine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel. cobble, and boulder particles are more than 75% surrounded by fine sediment.
3	SCORE V	20: 19' (18) 17' 16	15 14 13 12 11.	10 9 8 7 6	5 4 3 2 1 (
erame	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by I velocity/ depth regime (usually slow-deep).
	SCORE 0	20: 19 18 17 (16	15 14 13 12 11.	10 9 8 7 6	-5., 437 2. 1
Para	4. Sediment Deposition	and less than 5% of the bottom aifceted by sediment deposition.	from gravel, sand or line sedimenr: 5-30% of the bottom affected; slight deposition in pools.	sediment 0:1 old and new bars: 30-50% of the bottom affected; sediment deposits at obstructions, consulctions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development: more tha 50% of the bottom changing frequently; pools almost absent du to substantial sediment deposition.
	SCORE \5	20 19 18 17 16	(15) 14- 13 12 11	10. 9. 8: 7. 6	5 4 3 .Z E
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE 1		. 15. I4 13 12 III	10. 9 8 7 6	5 4 3 2 10

			Condition	Category		
टिट सिक्स डबाएगाछ टब्बटम	Aabimt Parameter	Optimal	Suboptimal	Marginal	Poor	
	6. Channel Alteration	Channelization or dredging absent or minimal; stream wirh normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yrj may be present, but recent channelization is nor present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
	SCORE 750	20) 19 18 17 16	15 14 13 12 11	0 9 s 7 6	5 4 3 2 I 0	
	7, Frequency of Riffles (or bends)	relatively frequent; rario f distance between ffles divided by width ithe stream <7:1 generally 5 to 7); variety of habitat is key. In streams where diffles are commons, placement of boulders or other large, natural obstruction is important.	C afrequent; distance etween riifles divided y the width of the tream is between 1 to 5.	occasional riffle or end; bottom contours rovide some habitat; istance between rifles ivided by the width of ne stream is between 15 a 25.	Generally all flat water or shallow riifles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
	SCORE M	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 l 0	
	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Vioderately stable; nfrequent, small areas of trosion mostly healed over. 5-30% oibank in each has areas o i srosion.	Moderately unstable: 30- 30% oibank in reach has treas of erosion; high trosion potential outing floods.		
2	SCORE (LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0	
ı be	SCORE (RB)	Right Bank 10 9	(8) 7			
o. q polytical to be evaluated b. o.	9. Vegetative Protection (score each bank) SCORE (LB)	More than 90% of the streambank surfaces and immediate mpanan zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow nativally.	covered by native vegetation, but one class of plants is not well- represented: disruption evident bur nor affecting full plant growth potential to any great extent; more than one- half of the potential plant	than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
	SEORE(\abla \abla)	Left Bank 10 (9)	a 7 6	5 4 3	2. I Ö	
	SCORE (RB)	Right Bank 10 (9)				
	10. Riparian Vegetative Zone Width (score each bank npanan 2004)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-11 meters; hurren activities have impacted zone 9 great deal.	Width of nparian zone <6 meters: little or no inparian vegerarion due to human acriviries.	
	SCORE (LB)	Left:Bank (10) 9	8 1 6	5 4 3	2 I 0.	
	SCORE (RB)	Right Bank10 S	7 e (g (8) . 7			

Total Score

STREAM NAME 0	LOCATION & BURY BOYN CC. Rd.
STATION# RIVERMILE	STREAM CLASS
LATLONG	RIVER BASIN
STORET#	AGMCY
INVESTIGATORS (1) JM_TA (1)	
FORM COMPLETED BY	DATE REASON FOR SURVEY

TE LOCATION/MAP	Photo # 2 downs fre am.
HABITAT TYPES	Indicate the percentage of each habitat type present Octobre 40 % 28fings 15% Octobercut Banks 10 % Exand 30 %
	□ Submerged Macrophytes 4 9 0 other (CPOm 1 5 %
STREAM CHARACTERIZATION	Subsystem Classification Stream Type Perennial Cinterminent Citidal Coldwater Swarmwater

RIPARIAN 2 NSTREAM	ONE/ FEATURES	Deforest C Field/F C Reside Cocal W Cocal W Cobvio Canopy Party	Pasture 🚨 Industria	uial il sources	Local Water Erosien None Moderate Estimated Stream With Estimated Stream Decorate Trible Moderate Stream On Moderate Estimated Stream On Moderate Trible Moderate Trible Moderate Estimated Reach Len Chaunefized Decorate Dam Present Decorate	onth <u>G</u> m Prun , <u>S</u> m RC See grin <u>100</u> m
RIPARIAN (18 meter bu	VEGETATION (Her)	Se Treat	the dominant type and at species present Ma	nrubs	Herbs Heach Che	COOUS
AQUATIC	VEGETATION	Indicate El-Roote I Float domina	f the dominant type and ad emergent — R ing Algae — — A	record the do coted submerge mached Algae	ominant species present and a Rooted floating	Free Floating
SEDIMENT	I/ SUBSTRATE	Oils	nal □ Sewage nical □ Anacrobic	······································	Looking at stones whembedded, are the	□ Other
WATER Q	UALITY	Special Dissolu pH Turbic	c Conductance c Conductance yed Oxygen dity intrament Used	. ;	Water-Odors Stormal/None So Petroleum Fishy Water Surface Oils Slick Sheet None Sotter Turbidity (if not me Storm Slight) Opeque Swater	Chemical Cother
	(should ac	id up to l			ORGANIC SUBSTRATE CO	up to 190%)
Substrate Type	Diamete	Г	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sumpling Area
Bedrock		50		Degrinus	sticks, wood, coarse plant materials (CPOM)	100
Boulder	> 256 mm (10")				<u> </u>	
Cobble		64-256 mm (2.5"-10") 2.5		Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mat (0.1*-2		0.0	1		
Sand	0.06-2mm (gritt		<u>9</u> 5	Mari	grey, shell fragments	
Silt	0.004-0.06 mm			+		
Clay	< 0.004 mm (slick)				1	<u> </u>

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

STREAMNAME Double	LOCATION Q 1501
STATION # 12 - RIVERMILE_	STREAM CLASS
LAT LONG	RIVER BASIN
STORET#	AGENCY
INVESTIGATORS LD, JM, JA, RW	
FORM COMPLETED BY	DATE 5-3-00 TIME 1345 AM PM REASON FOR SURVEY

١	Habitat		Condition	Category	·	
	Parameter	Optimal	Suboptimal	Marginal	Poor	
Parameters to be evaluated in sampling ream	I. Épifaunal Substrate/ Available Cover	Greater than 70% of substrate tavorable for epifaumal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared For colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack offiabitar is obvious; substrate unstable or lacking.	
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 05	
	2. Embeddedness	Gravel, cobble, and boulder particles are 0-	boulder particles are 25	Gravel, cobble, and boulder particles are 50-75% surrounded by fine	Gravel, cobble, and boulder particles are more than 75%	
		sediment. Layering of cobble provides diversity of niche space.	sediment.	sedirnent.	surrounded by fine sediment	
	SCORE	20 (19) 18 17 16	15 14 13 12 11	10 9 .3% 77 .6%	5 4 3 2 1 0	
	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shailow or slow-shallow are missing. Score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).	
	SCORE	2019 18: 17 16:	(15) 14 13 12 11.	10 -97 8- 7. 6	5 4 3 2 I 0	
Parar	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected: sediment deposits at obstructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development: more than 50% of the bortom changing frequently; pools almost absent due to substantial sediment deposition.	
	SCORE	[20] [19] (18) [17] [16]	15 14 13 12 11	10 9. 8: 7. 6	5 4 3 2 1 0	
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
	SCORE	20: 19 (18) 17 16	[15] 14 13 12 TT	10 94 85 71 16	57 4 3 2 1 0	

Habitat	Condition Category										
Habitat Parameter	Optimal	Sul	Suboptimal			Marginal			Poor		
Channel Iteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some cha present, ut of bridge evidence channeliz drodging, past 20 yr present, b channeliz present.	sually in abutment of past ation, i.e (greater) may be ur recent	areas s; than	extensive or shoring present to and 40 to	ization m e; embani ig structu in both b: o 80% of annelized	krnents res anks: stream	Banks sh gabion or 80% of the channeliz disrupted habitat gr removed	coment; ne s tream red and l. Instrea reatly alto	over reach	
CORE	:0 (19) 18 17 16	15 14	13 1	2 ll	10 9	\$	7 6	5 4	3 2	1 0	
. Frequency of tiffles (or bends))ccurrence of riffles elatively frequent; ratio if distance between iffles divided by width if the stream C7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of bouiders or other large, natural obstruction is important.	ŀ	r; distand rifles div dth of the	ided	bend: be provide distance divided	nal riffle ottom con some had between by the w	itours oitat: riffles idth of	Generalli or shallo habitat: or fiftes di width of ratio of s	w nffles; listance b vided by the stream	poor the	
CORE	20 19 (18) 17 16	5 15 14	13 l	2 11	10 9	8	7 6	5 4	3 2	1 0	
l Bank Stability score each bank) Note: determine lef or right side by acing downstream.	<5% of bank affected.	infrequer erosion r over 5	Moderately stable; infrequent, small areas of erosion mostly-healed over. 5-30% oihank in reach has areas of erosion.			Moderately unstable: 30-60% ofbank in reach has areas of crosion: high erosion potential during floods.					
SCORE(LB)	Left Bank 10 (9	3	7	6	5	4	3	2	ı	0	
SCORE(RB)	Right Bank 10 (9) 8	7	6	3	4	3	2	1	0	
right side by acing downstream. SCORE(LB) CORE(RB) Vegetative Protection (score such bank)	More than 9046 of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not cvident: almost all plants allowe to grow naturally.	covered vegetatic of plants represen evident full plan potentia extent; T half of t stubble remaini	the sunative on, bur on, bur on, bur on wited; disribut not a t growth I to any sunfie potentials.	ell- iption ifecting rest i one- ial plant	sweamh covered disrupt parches closely vegetal than of potenth height	of the pank surfill by vege ion obvious of bare corpped tion comine-half of all plant stremainin	tation; u::: oil or mon; less the tubble	streamb covered disrupti vegetati vegetati removr 5 centir average	neters or stubble	ces tation: camba y high een less ir height	
SCORE(LB)	Left Bank 10 (9)	1 8	7	6	5	4	3	3.	1	0	
SCORE (RB)	Right Bank 10										
10. Riparian Vegetative Zone Width (score each bank riparian zone		12-18 n acrivirie zone on	f riparian neters; hu es have in ly minin	man npacred	6-12 n	Of riparia nerers: hu ies have i great de	man mpacted	<6 met riparia to hum	of riparia ers: little n vegetati an activi	or no ion du	
SCORE(LB)	Left Bank	9) 8	7	6	5	4	3	2	1	0.	
1	Right Bank (10)	9 8	7.	6	5	4	3		I.	0	

Total Score IS\

STREAMNAME BIO Double	LOCATION a 150 (
STATION # 10-1R RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN
STORET#	AGENCY
INVESTIGATORS (N JM TA LU	
FORM COMPLETED BY	DATE 5-00 AM PM REASON FOR SURVEY

SITE LOCATION/MAP	aw a map of the site and indicate the areas sampled
	photo # 12 up photo # 13 down
	Photo # 13 down
	·
٠,	
<u> </u>	
	(adjence the percentage of each habitat type present
HABITAT TYPES	
	Scobble 70% Sangs 15 % Windercut Banks 5 % 35and 5 %
	□ Submarged Macrophyres% □ Other (CPOW)_5%
STREAM	Subsystem Classification Stream Type B. Ferennial O Intermittent O Tidal O Coldwater G-Warmwater
CHARACTERIZATION	Decembel Intermittent Tidal Coldwater Warmwater

PARIAN 2 STREAM	ONE/ FEATURES	Forest.	aspure 🔾 (pdustra ipural 🔾 Other	पांत्र!	Local Water Erosiod D None D-Modernin Estimated Stream Wi	: ☐ Heavy		
		ocai Watershed NBS Pollution No evidence Stome potential sources Obvious sources			Estimated Stream Depth Rifflo 2 m Run 5 m Pool 1 m Velocity 1, 2 hysec			
	1	1000y	Cover open C Pardy-shaded	□ Shade	· ·			
	-		nter Mark - 1.5 n		Chaunclized 🖵 Ye			
					Dam Present 🗅 Ye			
		Indicate	the dominant type 100	record the do	ominant species present	· · · · · · · · · · · · · · · · · · ·		
.8 meter bu	iffer)	Q-√mas	ut species prescut	hrubs	□ Grasses □ Herb	accous		
		h						
A.QUATIC1	VEGETATION	☐ Roote	denergent ⊒R	i record the do cored submerge trached Algae	ent O Rooted floating C	l Free Floaning		
		ll .	at species present					
		Portion	of the reach with veget	MOVE COVER	<u>5</u> %			
Coders Commal Commage Comman Comman			iical 🗔 Anaerobic	☐ Petroleum ☐ None	☐ Relict shells	T ☐ Paper Tiber ☐ Sand ☐ Other ☐ Sand		
		Oits 3 Abse	pr □ Slight □ Moder	ane 🗅 Prof	embedded, are the s	indersides black in color?		
WATER Q	UALITY	Specific	c Conductance		Water-Odors S-Kommal/None S S S Petroleum S Fishy			
		II .	red Oxygest	1	Water Surface Cills Q Slick Q Sheet 34460c Q Other	🖸 Globs 🖵 Fleeks		
 		II.	lity		Turbidity (if not m Stier O Slight	Turbidity (If not measured) SCien (1 Slightly turbid (1 Turbid) Opaque (1 Water color (2 Other		
īNÓ		TRATE C	OMPONENTS		ORGANIC SUBSTRATE C (does not necessarily add			
Substrate Type	Diamete	er	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area		
Bedrock				Decritos	sticks, wood, coarse plant	T		
Boulder	> 256 mm (10")		_5		materials (CPOM)	100		
Cabbl¢					black, very fine organic (FPOM)) <u> </u>		
Gravel	2-64 mm (0.1"-7	2.5")	40.	1				
Sand	0.0 6- Zman (grat	y)	5	Mari	grey, shell fragments			
Silt	0.004-0.06 mm			1				
				1	1	1		

STREAM NAME Sugar Cr	LOCATION @ Rodbird				
STATION # 13-12 RIVERMILE	STREAM CLASS				
LATLONG	RIVER BASM				
STORET # (V) JAJM PL)	AGENCY				
INVESTIGATORS					
FORM COMPLETED BY	DATE 5-3-00_ TIME 1180_ (AM) PM REASON FOR SURVEY				

	YY - 1. *		Condition	Category	
	Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transiene).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	2010% mix of stable habitat; habitat availability less thin desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
 _ _	SCORE (20. (19) 18 17 16	15 I4 I3 I2 II	10 9 8 7 6	5 4- 3 2. 1 0/-
sampling reach	2. Embeddedness	Gravei, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
led in	SCORE 18	20: 19 (18) 17 16	15' 14 13 12 11	10 9: 3 _i 7 6	·
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slaw-shallow arc missing, score low).	Bominared by 1 Verboury (1994) Trains (usually 81800-3669):
amet.	SCORE (20 19 18 (17) 16	15. 14- 13 12 11.	10 .9 85.77.0 6.	5 4 3 2 I 0
Para	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or tine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends: moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom chiging frequently: pools almost absent due to substantial sediment deposition.
Ì	SCORE (5	20 19 18 17 16	(15) 14 - 13 12 11	10 9 85 7 6	5 4 3 Z E 0
	5. Channel Flow Status	Water reaches base of one was a banks, minimal amount of channel substrate is exposed.	Water fills >75% of the <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or nifle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE	20 15 18 (17) 16	15 14 13 12 11	10 99 77 206	5 4 3 2 1

\Box	77 - 1-1		Condition Category							
	Habitat Parameter	Optimal	Saboptimal	Marginal	Poor					
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present. but recent channelization is not present.	Channelization may be extensive; embankments of shoring structures present on both banks: and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement: over 30% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed enrirely.					
	SCORE	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent: ratio of distance beween riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key, in streams where niffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of rifles infrequenr: distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend: bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally ail flat water or shallow riffles; poor habitat; distance between riffles divided by the width o i the stream is a ratio of >25.					
l Sailt	SCORE 19	20 (9) 18 17 16	15 I4 13 I2 I	10 9 8 7 6	5 4 3 Z J O					
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Bank stable; evidence of erosion or bank failure absent or minimal; little potential for future problems.	Moderately stable; infrequent, small areas erosion mostly healed over. \$-30% of bank in reach has areas o i erosion.	Moderately unstable: 30- 60% of bank in reach has areas of crosion; high crosion potential during floods.						
cva	SCORE 7 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0					
3	SCORE 9 (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 I 0					
Parameters	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or nor evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by nanve vegetation, bur one class of plants is nor well-represented; disruption evident but not affectinfull plant growth potential to any great extenr: more than one-half of rhe potential plast stubble height remaining.	patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streambank vegetation is vey high: vegetation has been removed to 5 centimeters or less in average stubble height.					
	SCORE(LB)	Left Bank (10) 9	à 7 6	5 a 3	Z. I, O					
	SCORE 10 (RB)	Right Bank (10) 9	४ 7 6	5 4 3	2. 1' 0					
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian Zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width Of riparian zone 12-18 meters: human activities have impacte zone Only minimally.	6-12 meters; human	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.					
	SCORE (LB)	LeftBank: (10) 9.	8 7 6	5 4 . 3	<u>2</u> 1 0					
	SCORE (RB)	Right Bank 10 (9) 8 7 6	5 4 3_	2 I. 0					

Total Score 16

STREAM NAME GUGGY CO	LOCATION & Red Bird
STATION # 13-R RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN
STORET#	AGENCY
INVESTIGATORS LD, TAJM, PW	
FORM COMPLETED BY	S-3-00 (M) PM REASON FOR SURVEY

SITE LOCATION/MAP	Draw a map of the site and indicate the areas sampled Photo サフ down Photo #8 up
HABITAT TYPES	Indicate the percentage of each habitat type present @Cobble_65 % @Snags 5 % @Codercut Banks 10 % @Sand 5 %
	Submerged Macrophyres % Dother (C POW) 15 %
STREAM CHARACTERIZATION	Subsystem Classification Stream Type Perennial Internations Tidal Coldwater GWarmwater

	D DATA SHEET (BACK)	TILA BIEF	TION/WATER QUA	CHARACTERIZA:	PHYSICAL
		[(30004 mm (510ck)	
				7 00.0 +00.0 tunit	102
	enterni itagments	haM	Ş	(Vning) (2017-90.0	Sand
			H	("2.5-"1.0) rum +b-	Gravei
	(MOST) Sinegro and very librarie	Muck-Mud	25	(<u>.01-,57</u>) <u>ww</u> 957-b	5 ⇒idda⊃
001	materials (CPOM)		01	. 256 mm (10")	Boulder :
	sacks, wood, course plant	zuciru-C			Sedrock
gailgme2 is Sampling % Sampling 5.577.6.	Characteristic	Substant Type	ei nodicogma». doess! yailqms?	Diameter	Substitute OqyT
	ORCANIC SUBSTRATE CC			GANYC SUBSTRATE (L on ga abd side (L or ga bbs bis bis bis bis bis bis bis bis bis	ROM
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abahi € adolo €	eliO soghud sareW man2 D soi(2 D man0 C anoNE			Hq	
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	% <u>Ç</u>	Takes satisfied	a of the reach with vege	Portio	
			AAt species present	nimob	
धुम्मञ्जूष		i record the do وهادع عناضحرور التناخارجة خاوعد	te the dominant type and tod concegnant (2) tod sandy series See See See	T KOOI	v ЭПТАЛОА
D. Jenpon X	SYCOLOGICA TON GOOD	ארא ופכול _ו	ant species present	пітор	
	tesesny esitesy takbino confi D azand D	l record the de tarabs	ser appriment op si S D	ECETATION ledica	RIPARIAN / (18 meter bul
9M -2 \$	oy C) nastori¶ msC				
ONE 8	Channedized 🗆 Ye	נו	ATEM TOTAL	K #SiH	
		क्रम्मार 🗀 ।	y Cover 🗅 Partiy-shaden		
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<u></u>	W mearle barembed oci mearle barembed	·	len nol	ם אפיי	
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STREAM NAME Sugar Co	LOCATION a Reclaire
STATION# 13-2-Oup RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN
STORET#	AGENCY

	YV-1-in-a		Condition	Саtegory	
	Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
	1: Epifaunal Substrate / Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover: mix of snags. submerged logs. undercut banks. cobble	40-70% mix of stable habitat: well-suited for full colonization potential; adequate habitat for maintenance oipopulations: presence of additional substrate in	20-40% mix of stable habitat; habitat availability less than desirable; substrate irequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	19	or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are nor new fall and not transient).	the form of newfall, but nor yet prepared for colonization (may rate at high end of scale).		
=	SCORE	20 (19) IS. 17 16	15 I4 13 12 11	10 9 8 7 6	5 4 . 3 2 1 0
arameters to be evaluated in sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine - sediment. Layering of eobble provider diversity of niche space.	Gravel, cobble, md boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble. and boulder panicles are more than 75% surrounded by fine sediment.
	score 19	20 19) 18 17 16	15 l4 13 12 ll	10 9 8 T 6	5 4 3 2 1 0
	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 manual regimes present iff fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
mele	SCORE d	20 19 180 (16	15. 14- 13- 12. 11.	10 97 80 77 6	2,5±,4+ 3° 2, 1 0;
Param	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or tine sediment on old and new bars; 30-50% of the bottomaffected; sediment deposits at obstructions, and bends: moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently: pools almost absent due to substantial sediment deposinon
	SCORE 15	20: 19 18 17 16	(15) 14' 13' 12' 11	10 9 8 7 6	5 4 3 2 L 04
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills > 75% of the available channel; or < 25% of channel substrare is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE (8	20. 19 (18) 177 16	15. 14 13 12 11.	10. • 9° · , 8°, . 7.° · × 6	5 4 3 2 1 0

	TY a bitmat		Condirion		
-	Habitat Parameter	Optimal	Suboptimal	ategory Marginal	Poor
	.Channel .lteration	Channelization or dredging absent or minimal: stream with normal pattern.	Sume channelization present. usually in areas of bridge abutments; evidence of past channelizsiun, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is nor present.	Channelization may be extensive; embankments or shoring structures present on both banks: and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement: aver 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE (20 (9) 18 17 16	15 l4 13 l2 ll	10 9 8 7 6	5 4 3 2 1 0
	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width oithe stream c7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous. placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 1 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width oi the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat: distance between riffles divided by the width of the stream is a ratio of >25.
55	SCORE (20. (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks suble: avidenct oferosion or tank failure absent or minimal; witle porenrial for future problems.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many croded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has crosional scars.
cval	SCORE(LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 L 0
ar o	SCORE <u></u> (RB)	Right Bank 10 /9)	8 7 6	5 4 3	2 I 0
Parameters to	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of rhe streambank surfaces covered by native vegetation, bur one class of plants is not well-represented: disruption evident bur nor affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	patches oibarc soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption o is reambank vegetation is very high: vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE (LB)	Left Bank (10) 9	8 7 6	5 4 3	2. l 0
	SCORE (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
	SCORE $\frac{0}{1}$ (LB)	LeftBank 1.0 9	<u> </u>	5 4 3	2. 1. 0.
	SCORE 4 (RB)	Right Bank 9	()(.8). 7 6	5 4 3	<u>2</u> l 0

Total Score 179

STREAM NAME S LLOCK	('22')	OCATION (1)	CECL Di YOU	
STATION #13-12-09 RIVERMILE LAT LONG		STR <u>eamc</u> uss		
		RIVER BASIN		
STORET#		AGENCY		
INVESTIGATORS (少), 万内	. TM _6)			
FORM COMPLETED BY		DATE	REASON FOR SURVE	Y
	LØ	DATE -3-00 AM P	M J	
	•			
TE LOCATION/MAP	raw a map of the site	and indicate the areas sam	pleti	
	Alexto # 1	D UP		
	Provide	-1 <i>7</i> A		
	Photo # 1 Photo # 11	dow.		
		•		
				1
	····	·		
HABITAT TYPES	=	ige of each habitat type pro	*	_
	SLEODOIL <u>80</u> %	⊒-≤nags_ <u>5_</u> % ⊐-tíndi	ercut Banks <u>5</u> % (21-5)	ю́а <u> </u>
	Cl Submergeri Macrop	hytes% © Other (crom =	<u>5 %</u>
STREAM CHARACTERIZATION	Sabsystem Classifica Decrennial Olin	itioa terminent 🖸 Tidal	Stream Type © Coldwater	Warmwater

	ES	Canop Carop Carop Carop Carop Carop Carop	Pasture Clindustri	ercial ful	Local Water Eposion None Bridderan Estimated Stream W Estimated Stream Do Riffle 12 m Pool 1 m Velocity 1.2 m Channelized DY Dam Present DY	idth 6 m poth 7 m Run 5 m 4/5cc vsec agth 100 m m No
RIPARIAN (18 meter b	VEGETATION: uffer)	3. Les	s □S	hrubs	ominant species present Grasses Hert	RCCOULS
AQUATIC	VEGETATION	Indica Q Root Q Fioa domin	te the dominant type and	d record the d Copied submerg Misched Algae	ominant species present ent I Rooted floating C	1 Free Floating
SEDIMENT/SUBSTRATE Odors Priorital Chemical Other Other Oils Prisent Slight Moder			C Petroleum C None	Deposits Studge Sawdus Relict shells Looking at stones we	T Paper fiber I Sand I Other thich are not deepty nadersides black in color?	
WATER QUALITY Temperature° C Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used			- j	Water Other Normal/None (2) S Peroleum Fishy Water Surface Oils Slick (2) Sheen None (2) Other Turbidity (if not to (2) Clear (2) Slight	© Chemical © Other © Globs © Flecks essured) y turbid © Turbid	
INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)				ORGANIC SUBSTRATE C (does not necessarily add	- · · · · · · · · · · · · · · · · · · ·	
Substrate Type	Diameter	•	% Composides in Sampling Reach	Sebstrate Type	Characteristic	% Composition in Sampling Area
Bedrock Boulder	> 256 mm (10")		5 2 ₀	Degias	sticks, wood, coarse plant materials (CPOM)	100
Cobbie	64-256 mm (2.5"-10")		35	Muck-Mud	black, very fine organic (FPOM)	
Gravei	2-64 mm (0.1"-2.5")		3 5			
Sand	0.06-Zmm (griny)	<u> </u>	Mart	grey, sheil fragments	
Silt	0.004-0.06 mm	····				
PHYSIC.	AYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)					

STREAM NAME LICKS Br	LOCATION @ Cyprus AMAX Pd
STATION# /	STREAM CLASS
LATLONG	RIVER BASIN
STORET#	AGENCY EPA / KYDUW
INVESTIGATORS Howard /weld	on/Call,
FORM COMPLETED BY	DATE 5/4/00 REASON FOR SURVEY TIME 7005 AMD PM KY WTW VF

	Habirat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	I. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix or's nags, submerged logs, undercut bank, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form o inewfall, but nor yet prepared tor colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack ofhabitat is obvious: substrate unstable or lacking.
=	SCORE	2019. 18 17 16	15 14- 13 12. It	10 9 8 7 6	5 4 3 2 L 0
Parameters to be evaluated in sampling react	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by tine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are mare than 75% surrounded by fine sedimenr.
	SCORE	20 19 18 17 16	. 15 14 13 12. [1]	10 9 8- 76	5 (4) 3. 2. F. OF
	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow) deep, slow-shallow, fast-deep stast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Coly 2 of the Allerings present (if fast-shallow or are missing, score low):	Dominated by l velocity/ depth regime (usually slow-deep).
III G	SCORE	20 19 18 17 16.	15 (14) 13 12 11	10 -9- 8- T. 6	5 4 3 2 1 0
Рага	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Same new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% of the bottom affected: slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bonom affected; sediment deposits at obstructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bonom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE	20. 19. 18. 17. 16.	15 14 13 12 11	10 9 8 (T) 6	5-4 3 Z E 0
	5. Channel Flow Status	Water ranches base of both lower banks, and minimal amount oi channel substrate is exposed.	Water fills >75% 0 i the available channel; or <25% of channel substrate is exposed.	Water tills 25-75% of rhe available channel. and/or riffle substrates are mosrly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE	20. 19 (18) 17: 16	15 14 I3 12 III	10. 97 8. 7 6	5 4 3 2 1 0

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51

Habitat		Condition	lategory	
Parameter	Optimal	Subontimal	Marvinal	Poor
Channel Iteration	Channelization or dredging absent or minimal: stream with normal pattern.	iome channelization present, usually in areas of bridge abutments; widence of past thannelization, I e, itedging, (greater rhan past 20 yr) may be resent, bur recent thannelization is nor present.	Thannelization may be extensive; embankments or shoring structures resent on both banks; and 40 to 80% of stream reach channelized md disrupted.	Banks shored with gabion or dement over 10% of the stream reach thannelized and listupted. Instream tabitat greatly altered of temoved entirely.
CORE	20 /19)18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Frequency of siffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7): variety of habitat is key. In streams where riffles are continuous.	Occurrence of riffles infrequent; disrance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend: bottom contours provide some habitat; distance between nffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles: poor habitat; distance between fifles divided by the width af the stream is a rand of >25.
10000	obstruction is important.	16 14 12 12 11	10 0 0 7 0	
SCORE	20 19 (18/17 16	15 14 13 12 11	10 9 3 7 6	5 4 3 2 1
8 Bank Stability (score each bank) Note: determine left or right side by ficing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems.	Moderately stable: Infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable: 30-60% of bank in reach has areas of erosion; high erosion potential during tloods.	
SCORE(LB)	Left Bank 10 9	S (7) 6	5 4 3	2 1 0
SCORE(RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs. or nonwoody macrophytes; vegetative distuption through grazing or mowing minimal or nor evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is nor well-represented; disruption evident bur nor affecting full plant growth potential to any great extent; more rhan one-half of the potential plan stubble height	patches of bare soil or closely cropped vegetation common; less than one-half of the porcuriai plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation: disruption of streamba vegetation is very high vegetarian has been removed to 5 centimerers or less in average stubble height
SCORE(LB)	Left Bank 10 9	8 (7) 6	5 4 3	2. 1 0
SCORE(RB)	Right Bank (10) 9	8 7 6.	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone activities (i.e., parking lots, roadbeds, clear- Widthawfriparianops)c >18 meters; human	Width of riparian zone activities have impacted zone only minimally.	Width of riparian zone activities have impacted zone a great deal.	Width of riparian zone meters: little or no riparian vegetation du human activities.
SCORE(LB)	activities (i.e., parking 'lots, roadbeds, clear-	12-18 meters; human	6-12 meters; human	2 ,
SCORE (RB)	cuts, lawns, of crops) have not impacted zone.	zone nly minimally	zone a great deal.	2 1 0
	Left Bank: 10: 9			
)	8 (7) 6.	5 4 3	1 0

STREAM NAME -/ CKS DF	LOCATION (& Cypris AMAY Rd
STATION # 14 RIVERMILE	STREAM CLASS /
LAT LONG	RIVER BASIN ,
STORET #	AGENCY EPA/KUDOW
INVESTIGATORS Hower & Wes	
FORM COMPLETED BY Ital	DATE 5/4/00 REASON FOR SURVEY 1005 AM PM KY MTM/UF
1 19	te and indicate the areas sampled
	30 downtren mid-pt
Sta. 14-D PIX # (Duplicate) PIX #	31 upstream, and pt 32 downstream, and pt
·	
HABITAT TYPES Indicate the percen	tage of each habitat type present
	□ Snags % □ Undercut Banks % □ Sand %
	
☐ Submerged Macro	potrytes% statutes (& laflack,)%

Subsystem Classification

G-Perennial Q Intermittent Q Tidal

STREAM CHARACTERIZATION

Stream Type

Watmwater

	D DATA SHEET (BACK)	ISAN ALLI	THO GOLL RENGE		> 0.004 mm (sliv	Ciay
	ट्राक्तकृष्टमे भिनेष १८५७	haM.			nun 80.0-100.0	pue?
					(ming.) mm.5-80.0	
			52.02	("2,5-"1.0) mm 48-1		
	(IANO 2 1) STEETS TO SHIP (124 FEWER)	DUIN-SCHOOL I	0/7		2.2) mm 32.49	Slace
	placie, very fine organic (FFOM)	Muck-Mud			(*01) mm öčz <	Boulder
9/	Oemitus sticks, wood, coarse plant materials (CPOM)			3500tb=		
	train asserts book arbits		www. Sandana	 		
nilyme2 ni noirieogmo⊃ %	Срагасиятаба	Substrate adyT	% Composidos in Saujoling Reach	Substrate Diameter		
TRATE COMPONENTS ORGANIC SUBSTRATE COMPONENTS (does not decetastrily add up to 100%)						DNI
Turdidity Turdidity (if not reference) Turdidity (if not reference) Turdidity (if not reference) Turdid Opeque — Vent color — Other						-
Ad Short C Sho						
Temperature 2 Conductance 2 Servage Specials Conductance 2 Servage C Petroleum 2 Chemical Specials Conductance 2 Servage				նրոոց Մարոց	ሃፐቤታህር ደጃፒሐም	
Looking at stones which are not deeply cylphedded, are the underzides black in color?						
Odocz Oderwage Operalem Osłudze Osawana Operalem Osłudze Osawana Operalem Osłudze Osawana Operalem Ocher Ocher Ocher Ocher Ocher					TAMINENT SEUS (TRAMICA)	
	%	Acive cover	of the reach with vege	Portion		
dominant species present					A/M	
Indicate: the dominant type and record the dominant species present Record energent Record submergent Record doming Free Floating Record energent Record submergent Record doming Free Floating Free Floating Prosting Algae					рогтатабау этгар	
		<u> </u>	Instant estants in	*nimop		
Tadjende the dominant type and record the dominant species present					IPARIAN VECETATIONI 8 meter buffer)	
- ON-F	Dam Present Q Yes					
ONE	≥γ ⊆ ChannedZed □ γ ≃	J	WE Mark LL	W PSIH	_	
w 007 m		⇒beri2 🖸		Canopy Canopy	.	
uny (ਹ <i>ਾ≅ਾਰ/ − 9</i> ਭਾਸ਼ਾਲ ਹੈ: <i>ੀ</i> ਨ	samos (aterabed NPS Pollution dence <u>4 So</u> me polentia sa sources	ivo ovi 🗀		
·	Estimated Stream Veid:			uoing∧ ⊊ G Reside:		
WEHT.	Local Waret Erosion Artone — Moderne	TEXE		APPORES 다	รสมบานสำ	FARIAN Z STREAM